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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,976	01/03/2002	Naoki Nishida	15162/04220	7848

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EXAMINER

VALENCIA, DANIEL E

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,976

Applicant(s)

NISHIDA ET AL.

Examiner

Daniel E Valencia *DN*

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 9, 2003 Amendment 'A'.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's communication filed on July ⁹~~14~~, 2003 has been carefully studied by the Examiner. Some of the arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections based upon prior art (Sakada, Barth, and Mitchell) made of record in the previous Office Action are withdrawn. In view of further search, however, and the consequent discovery of previously uncited prior art documents, a new rejection is applied to certain of the pending claims. The § 102(e) rejection based on McBride is maintained. This action is **not** made final.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by McBride U.S. Patent Application Publication No. 2002/0048425 A1 (previously cited). Refer to the appropriate drawings or parts of the specification. McBride discloses a microfluidic optical electrohydrodynamic switch with all the limitations of the

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abovementioned claims. Regarding claim 9, McBride discloses an optical switch (fig 1-5) comprising: a groove (102) intersecting with an optical waveguide (108) and filled with liquid (104); a switching member (126 and 104) movably provided in the groove; and a micro pump coupled to the groove for transferring the liquid in the groove.

McBride further discloses that the micro pump (paragraphs 15 and 16) element has no valve, as explained in claim 11. Referring to claims 12 and 13, McBride discloses that at least part of the switching member has a refractive index different from the fluid (126). McBride discloses that the refractive index of the optical path matches with one of those of the at least a part (104 index matching fluid) of the switching member and the fluid.

In the communication filed July ⁹~~14~~, 2003 Applicant asserts that the claimed invention is patentably distinct over McBride, because McBride does not disclose that the claimed liquid, moveable switching element, and micro pump are three distinct elements. It is undisputed that McBride discloses a distinct pump (120). However, the claim language itself does not preclude the actual fluid in the groove from also comprising the switching member. McBride discloses a microfluidic switch in which a micro-pump uses fluid to move a switching member; therefore, the reference meets the limitations of the claims enumerated above.

Claims 1-4, 8, and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Bjorklund U.S. Patent Application Publication No. 2002/0044721 (newly cited). Refer to the appropriate drawings or parts of the specification. Bjorklund discloses a MEMS device having multiple DWDM filters with all the limitations of the

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abovementioned claims. Regarding claims 1 and 15, Bjorklund discloses an optical switch (fig. 2) for changing over a running direction of a plurality of different wavelengths (λ_1 - λ_n) of light passing through an optical waveguide between a first direction and a second direction, said optical switch comprising: a switching member (47) disposed on an optical path of the optical waveguide, said switching member having a plurality of switching (disposing different 47'-47'''' in the waveguide path) positions for selectively guiding each of the plurality of different wavelengths of light independently into one of the first direction (35) and the second direction (33) depending on a position of said switching member. Bjorklund's disclosure further shows that the plurality of switching portions includes a first switching portion (47') and a second switching portion (47''). Wherein the first switching portion is for guiding lights of first (λ_1) and second (λ_2) wavelengths into the first and second directions, respectively, and wherein the second switching portion (47'') is for guiding lights of the first (λ_1) and second (λ_2) wavelengths into the second and first directions respectively, as explained in claims 2 and 16. With reference to claims 3 and 17, Bjorklund discloses that the switching portions include a third switching portion (47''') for guiding lights of the first and second wavelengths into one of the first and second directions. As to claims 4 and 18, Bjorklund discloses that the switching member is configured to move within a groove (fig. 2) intersection with the optical waveguide. Bjorklund further discloses that the plurality switching portions are interference filters (paragraph 50).

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 7, 9, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjorklund in view of Koh U.S. Patent No. 6,363,183 (newly cited). Refer to the appropriate drawings or parts of the specification. Bjorklund as applied above, discloses an optical waveguide switch with a plurality of switching portions movably positioned in a groove for switching wavelengths independently, including the limitation of 14. However, Bjorklund does not explicitly state that the groove can be filled with liquid.

On the other hand, Koh discloses a similar waveguide switch for independently switching wavelengths that teaches the limitations that the Bjorklund reference fails to expressly disclose. Regarding claims 5, 6, 7, and part of 9, Koh discloses first that the groove is filled with liquid (claim 10). Koh implies that it is advantageous to do so because the fluid can match the index of the waveguides. Koh teaches that pumps, motors, mechanical actuators, and piezoelectric mechanisms are all equivalent means of displacing a switching member (col. 7, lines 55-bottom). Regarding claim 10, Bjorklund that a piezoelectric element can be used to move the switching member (paragraph 65). One of ordinary skill in the art would find that the teachings of Koh are combinable with the device disclosed by Bjorklund, due to the similarities in structure of

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the two devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to fill the groove in Bjorklund with fluid and use a pump to move the interference filters.

Conclusion

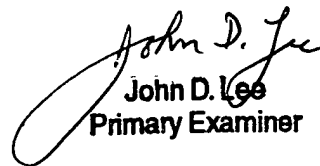
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel E Valencia whose telephone number is (703)-305-4399. The examiner can normally be reached on Monday-Friday 9:30-6:00.

The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7724 for regular communications and (703)-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.



DEV
August 6, 2003



John D. Lee
Primary Examiner